Western Electric

633 A DYNAMIC MICROPHONE

633A *Dynamic Microphone*

The 22A Speech Input Equipment and the 633A Microphone make a very efficient combination. From one to four microphones may be used with the 22A.

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A POPULAR PRICED DYNAMIC MICROPHONE WITH POPULAR FEATURES...

A development of Bell Telephone Laboratories, the research laboratories of the American Telephone and Telegraph Company, and the Western Electric Company

WESTERN ELECTRIC now adds the 633A Dynamic Microphone to its large family of pick-up equipment. This microphone has many distinctive features heretofore found only in high quality microphones designed for radio broadcast and the larger sound systems. Not the least important of its features is its low price.

This microphone can handle a wide variety of pick-up and possesses performance characteristics in complete keeping with other microphones which cost much more. The 633A performs equally well as a non-directional and as a directional microphone. Because of the number of its potential users who have neither controlled studio conditions nor a selection of microphones to meet varying conditions, the 633A is placed in the middle of the range from non-directional to directional response characteristics. Furthermore, due to its low electrical impedance the microphone may be used at a considerable distance from the amplifying equipment.

Many sound systems and broadcasting stations now using inferior pick-up units will be improved very materially by substituting one or more 633A Microphones. Many microphone users will find it worth while to purchase 633A's and avoid the expense of periodically reconditioning older microphones. When this microphone is in circuit the pick-up section of your equipment offers small cause for worry.

Convenient mountings, adaptability, small size, light weight, ruggedness and quality of performance add to its desirability. The 633A will be particularly welcome for use with sound systems in schools, in restaurants, in hotels and in hospitals, by radio telephone amateurs and in commercial broadcasting, particularly for all remote pick-ups.

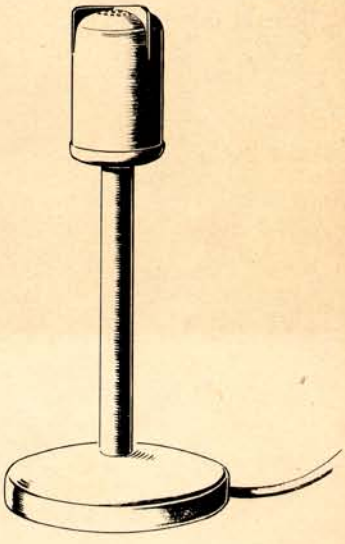


Table type mounting with 633A Microphone in non-directional position.

633A *Dynamic Microphone*

When the 633A is in a vertical or non-directional position the artists may take position and location which best suit each performer.

PROOF OF PERFORMANCE

When the microphone is in a vertical position, that is, either suspended by a cord or inserted directly into the floor or table mounting, the response will be the same for sound arriving from anywhere in a horizontal plane. (See top curve, Figure 1, page 8). This response is fairly balanced around an output level of -90 db throughout the entire range from 40—10,000 cycles. From this observation it follows that, for all practical purposes, a group of persons may be distributed around the microphone without the necessity of close crowding immediately in front of the instrument. Indeed, an orchestra may be directed without discriminating against any particular instrument or section of instruments.

When in the directional position, the response for sound arriving normally at the diaphragm is shown by the center curve, Figure 1, page 8. This response is substantially the same for lower frequencies as that in the non-directional position. At higher frequencies the response is characterized by a gradual rise in level from -90 db at 2,000 cycles to -80 db at 9,000 cycles.

The bottom curve on the same chart on page 8 will show that the normal incidence response of the microphone with the use of the baffle increases the sensitivity in the region 1,000 to 5,000 cycles. This region, particularly 1,000 to 3,000, is the most critical for intelligibility of speech.

The corresponding increased directional properties of the 633A with the use of the baffle are shown in curves in the graph, Figure 2, page 8. The curves in this graph indicate by comparison the loss in the field response of the microphone—with and without the baffle—for sound of angular incidence. The 90° curves give plain evidence of the desirable loss which has been introduced for undesired sound. Upon examination of the 150° curves, full appreciation is had of the value of the 633A microphone when used specifically as a directional unit.

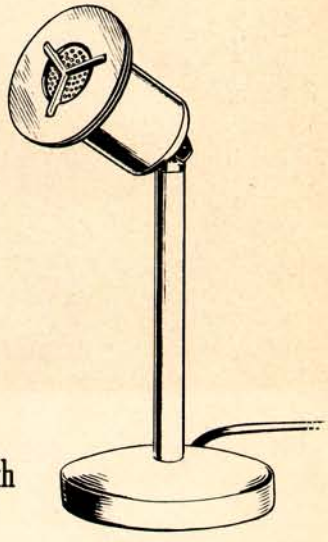


Table type mounting with 633A Microphone in directional position — with Baffle Attachment.

633A *Dynamic Microphone*

The 633A performs equally well as a non-directional and as a directional microphone. A Baffle Attachment may be used to accentuate the directional effect.

A LIGHT AND COMPACT MICROPHONE

The 633A is enclosed in a small cylindrical housing — 2″ in diameter by 3-1/2″ in length—on the dome shaped end of which there are three projecting, protective fins. These fins strengthen the protective grid over the diaphragm and protect the face of the microphone. The housing is finished in aluminum gray with which the bright polished edges of the fins contrast attractively. The weight is 10 ounces; ample evidence that the 633A is the lightest, high quality dynamic microphone yet produced. The small, compact size and light weight have in no way sacrificed ruggedness or durability.

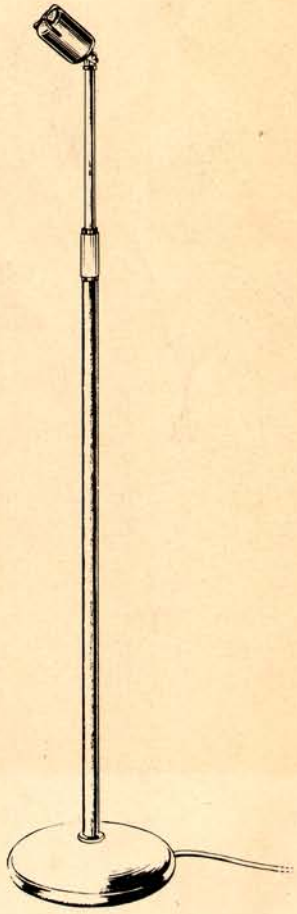
METHODS OF VARYING THE POSITIONS

The 633A Microphone may be suspended by its cord or it may be mounted on a stand. When suspended by the cord or mounted directly on its stand, the microphone is in a vertical position and performs effectively as a non-directional unit.

The directional characteristics may be brought partly into effect by the use of a swivel joint which enables the angle of the microphone on the stand to be varied from the vertical to the horizontal position. A baffle attachment may be used to accentuate the directional effect.

TWO TYPES OF MOUNTINGS

The first is the table type and is designed so that the microphone may be used on a table, a stand, a desk or held in the hand, as found most convenient. The other is the floor type intended, as its name implies, to be placed on the floor and used wherever this stand is found more convenient than the table type. Some installations include both types. The table type with the housing in vertical position is 12″ high. The floor type — with the microphone housing in a vertical position — may be varied in height from 46″ to 76″.



Floor type mounting with 633A Microphone in directional position — without Baffle Attachment.

633A *Dynamic Microphone*

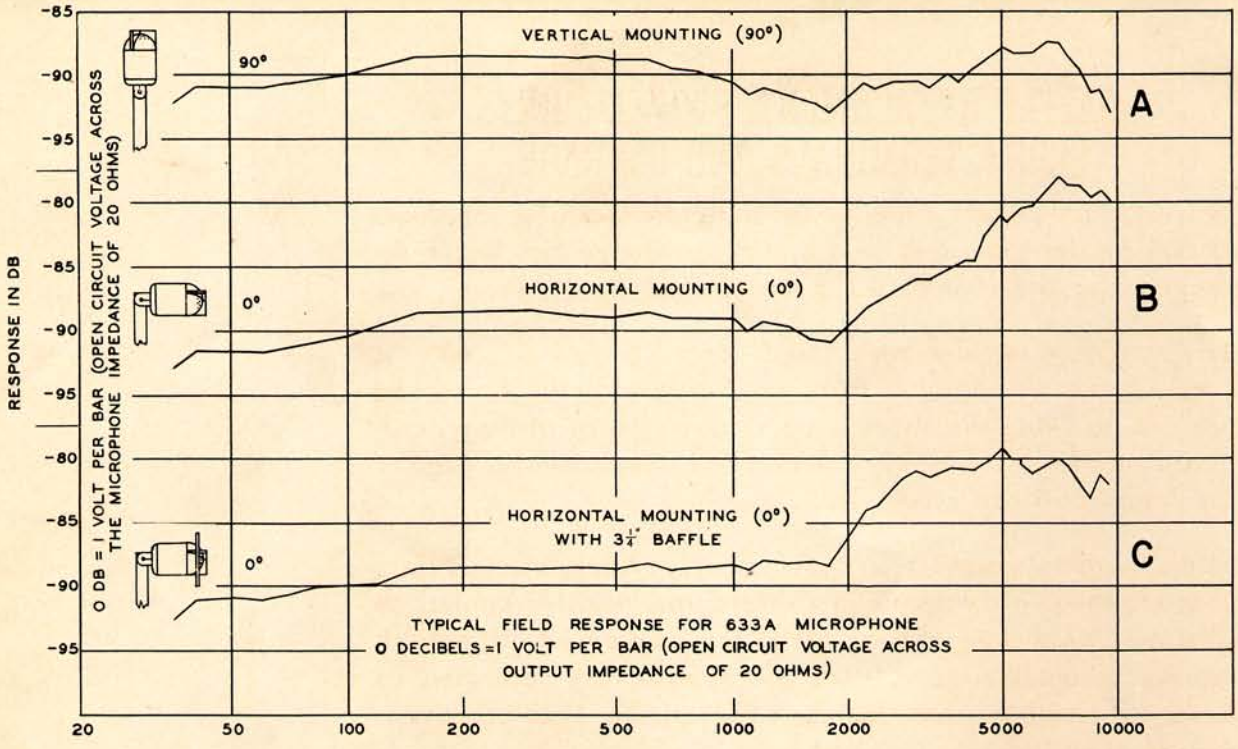


FIG. 1

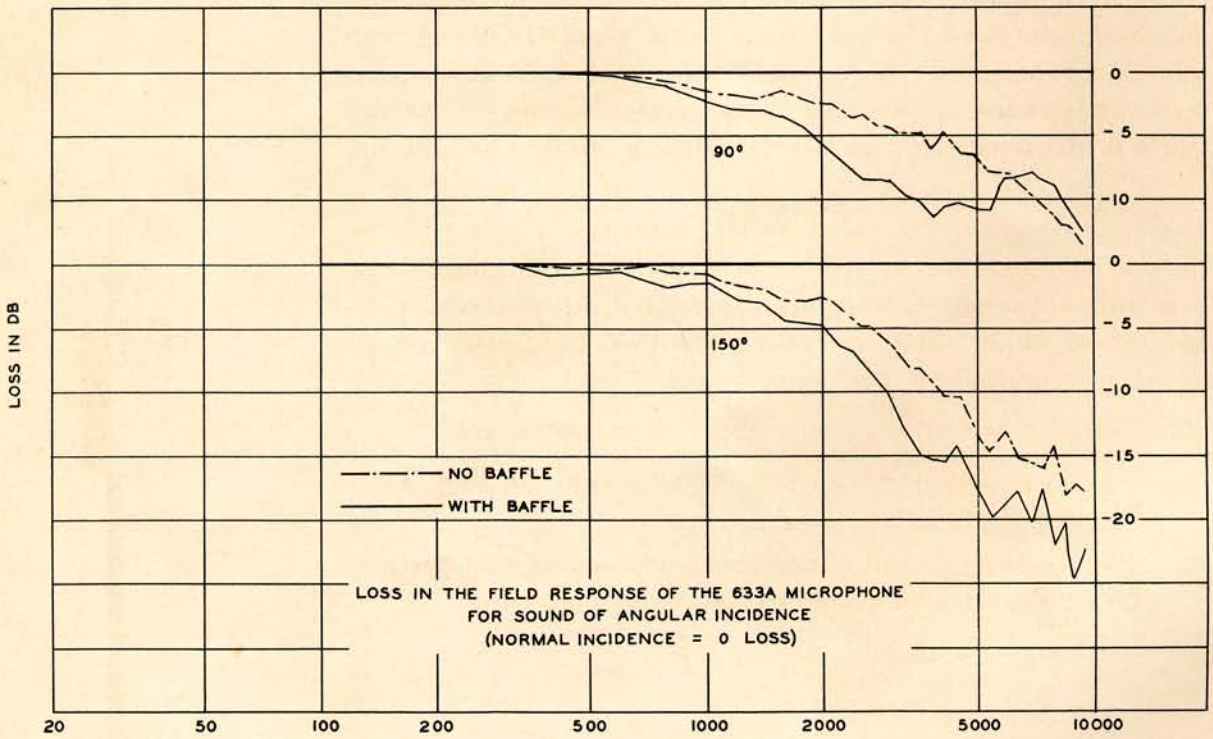


FIG. 2

These charts show the effectiveness of the 633A when used either as a non-directional or as a directional microphone — with and without the Baffle Attachment.

BAFFLE ATTACHMENT, SWIVEL JOINT, SCREW TERMINALS AND CORDAGE

The baffle attachment—mentioned under the heading "Methods of varying the Positions"—is a 3-1/4" diameter disc which fits snugly over the face of the microphone.

The swivel joint, also mentioned, must be used to vary the angle of the microphone from the vertical to the horizontal position to bring the directional characteristics of the microphone into prominence. (See Ordering Information on page 11 for complete list of accessories).

Screw terminals similar to those on an ordinary electric light plug are used. This results in a direct and positive contact at all times. By the use of this type of terminal an additional advantage is obtained in that the microphone may be suspended by its cord without straining the connections. This eliminates the use of additional plugs and jacks.

In view of its suitable electrical characteristics, flexibility and durability, the KS-7133 cordage is recommended for use with this microphone. It is two-conductor, shielded, rubber covered cordage and its smooth outer surface permits it to slip freely through a microphone stand without binding or kinking.

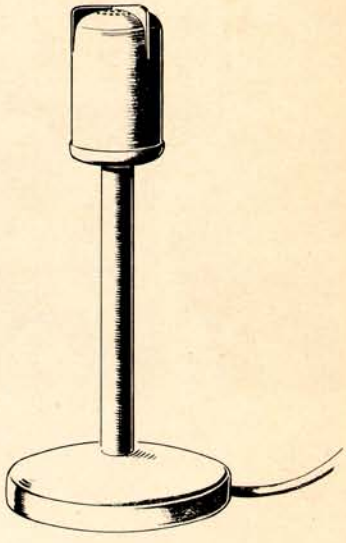
SUMMARY

In the development of this new dynamic microphone, low cost and high quality have been foremost in the minds of the designers. Both goals have been achieved by careful design of every component.

Other important features of the 633A Microphone are:

(1) The diaphragm—a special development of Bell Telephone Laboratories.

(2) The diaphragm and magnet structure—designed particularly to meet wide range frequency specifications.



Convenient mountings, adaptability, small size, light weight add to the desirability of the 633A.

633A *Dynamic Microphone*

Here the 633A is in the non-directional position. The microphone can handle a wide variety of pick-up and possesses performance characteristics in complete keeping with microphones which cost much more.

(Features continued)

(3) A radical reduction in the number of parts required for the original moving coil type of instrument—thus simplifying the assembly.

(4) To these features add the careful production of every part by Western Electric according to prescribed standards and the result is—

(5) An efficient, compact, simple and rugged instrument which may be expected to give a long period of satisfactory service—typical of all Western Electric sound equipment.

ORDERING INFORMATION

The 633A Microphone includes only the microphone itself. For convenience in ordering, the code number "633B" has been assigned to include the microphone and certain accessories.

The 633B includes the following components, *any one of which may however be ordered individually.*

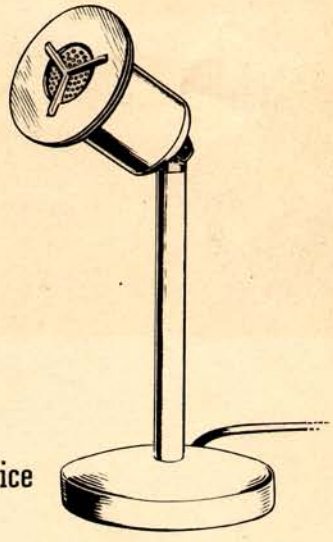
1—633A Microphone
1—8A Transmitter Attachment (Baffle)
1—9A Transmitter Attachment (Swivel Joint)
20 feet KS-7133 Cordage (furnished in 20 ft. length unless otherwise specified)

The following two items do not form a part of the 633B Microphone and should be ordered separately:

1—23A Transmitter Mounting (Table or Desk)
1—22A Transmitter Mounting (Floor)

ADDITIONAL INFORMATION

For additional information regarding complete equipment for program sound and radio transmitting systems including the 633A Microphone, or other units manufactured by Western Electric you are invited to address any distributor whose name and address will be found on the last page of this bulletin.



Other features of the 633A: ruggedness, quality of performance and low price

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